Abstract

Title: Assessment of the activity of the shoulder girdle muscles during static period of climbing movement.

Objectives: The aim of the study is to determinate the electromyographic activity of shoulder fixators during natural and corrected climbing grip. The second aim is to compare this activity between the group of climbers and nonclimbers.

Methods: The research involved 6 people, 3 climbers and 3 nonclimbers. The surface electromyography had been chosen as an objectification method. Measurements were perfomed during 4 static situation with two variants (natural and corected position). We tested these muscles: m. pectoralis major, m.sternocleidomastoideus, horní, střední a dolní část svalu m.trapezius, m.serratus anterior. The average amplitude normalizated to maximal voluntary contraction (MVC) was evaluated.

Results: The significantly lower average amplitude was measured for the middle trapezius (18,4 ± 8,9 % MVC) in natural position (average of all positions) than in position corrected (35,3 ± 11,8 % MVC). For the lower trapezius, the average amplitude in natural position (30,1 ± 13,8 % MVC) was measured significantly lower too than in corrected position (61,7 ± 15,4 % MVC).

Conclusions: The measurement results showed that, the EMG activity of the middle and lower m. trapezius was during corrected position higher than natural position. A difference in rate of muscle activity between climbers and nonclimbers wasn´t confirmed.

Keywords: sport climbing, EMG, physiotheraphy